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H. C. RAMSOWER, Director

Managing a Farm in the Corn Borer Area

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The Situation

1. The European corn borer threatens to reduce farm earnings by requiring extra labor or by reducing corn yields.
2. In Ohio corn is one of the highest profit crops and most rotations are built around it.
3. Farmers are seeking a practical solution of the corn borer problem which will permit them to continue corn production without a decrease in farm earnings.
4. The crop and livestock system on any farm determines largely the amount of extra labor required for corn borer clean-up, and has a direct influence on farm profits.
5. Farm account records have shown four important points in crop selection:
    a. Include a large percentage of high profit crops in the rotation.
    b. Select crops which will give a good distribution of labor.
    c. Grow enough legumes to maintain or increase crop yields.
    d. Use a crop sequence which will dispose of the corn refuse with a minimum of extra effort.
6. Livestock are an important part of a successful farm; therefore:
    a. Select the livestock which will make the best use of available feeds.
    b. Sell products that are best adapted to marketing facilities.
    c. Keep livestock that will use available labor during slack periods.
    d. Use livestock to convert cornstalks into manure.
7. The successful farmer will adopt the organization and control practices which are best adapted to his conditions and which will give him protection at the lowest cost.
8. The information which forms the basis for the statements in this bulletin was secured from farm account records kept by farmers in Northwestern Ohio in the corn borer area and from information secured by visits to these farms in the spring of 1928.
9. The following control practices were used on the seven most successful farms studied:
    a. Low cutting of corn.
    b. Plowing down of stalks and stubble.
    c. Raking and burning of long stalks.
    d. Combinations of these practices.

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Managing a Farm in the Corn Borer Area

The European corn borer has been increasing very rapidly in the United States and has been spreading farther into the Corn Belt each year. In order to avoid the damage to the corn crop that has occurred in other areas, it will be necessary for farmers to adopt farming practices which will control this pest.

There were about three and one-third million acres of corn grown in Ohio in the year 1928. This was 31 per cent of all crop land harvested in that year. Corn occupies such an important place on Ohio farms because over a period of years it is one of the most

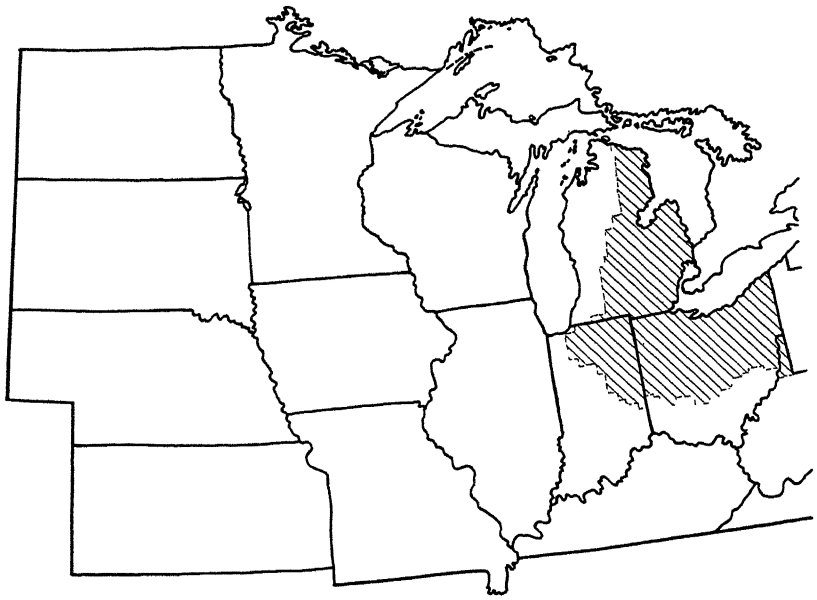

Fig. 1.—At present (March, 1929) only a small portion of the Corn Belt is known to be infested with the corn borer.

profitable crops that can be grown. In most sections the farming system is built around the corn crop, and over a period of years as much corn will be produced as is possible with available labor and without causing a decrease in yields.

During the past two years farmers of northern Ohio have been attempting to find a practical solution of this problem which will enable them to continue to grow corn under corn borer conditions. In order to find the most desirable practices, a detailed study was made of eighty of the most successful farms in northwestern Ohio. These farms had been profitably managed before the advent of the corn borer and also have been able to adapt their

plans to corn borer conditions in the most economical way. This bulletin is based upon the results of this study.

Farmers Seek a Practical Solution

Corn borer control practices in the future will depend upon the effectiveness of present methods and the development of new and more practical means of control. In the meantime the practical farmer will continue to grow corn. A study of farming practices on Ohio farms reveals the fact that some farmers have been able to meet control regulations with much less extra labor than others. A practical farmer is interested in adopting control methods, and a farming system, which will for the next few years enable him to get the maximum return from his farm and at the same time leave the soil in a condition to continue with profitable production. *In the long run the farmer will spend as much extra effort in combating the corn borer as it is profitable for him to do. He cannot be expected to do more.* If the corn borer increases rapidly and commercial damage becomes general the farmer will, if possible, adopt those methods that will keep the borer infestation below the point of serious commercial damage. If the borer develops more slowly the farmer will be inclined to spend less effort in the clean-up.

This situation is exactly the same as for other farm practices and the control of other farm pests. The farmer works his land only to the point where he feels that additional labor will not be rewarded by an increased yield sufficient to cover the added cost. He will harrow a field the second time only if he feels that he will receive a higher yield to cover the cost of the added harrowing. Just in the same way the farmer will voluntarily rake his stalks an additional time or will plow the land for oats to cover the stalks if he feels that these operations will result in added profit for the farm as a whole, over a period of years.

Farm Management Phases of the Problem

Anyone giving thought to the corn borer situation will realize at once that the problem has certain farm management aspects. Good farm management consists of organizing and operating a farm unit in such a way that the greatest continued returns may be secured. In other words, the farm should be profitable over a period of years.

Many farmers believe that farms can be profitably operated without a reduction in corn acreage in spite of the presence of

the European corn borer. There is a consensus of opinion among entomologists that the corn borer cannot be exterminated, and that farm practices must be adopted which will keep the infestation below the point of serious commercial damage. In many sections where corn is the most profitable crop at the present time there will be little if any reduction in corn acreage so long as the situation can be satisfactorily handled in any other manner. Good farm management is merely adapting the organization and practices to fit existing circumstances.

Since the beginning of American agriculture economic conditions have been constantly changing due to increasing population, improvements in transportation, improvements in machinery, etc. Farming types have changed in response to these changing economic conditions. The successful farmer is the one who makes the correct changes in advance of his neighbors who continue with old practices after they cease to be profitable for the area. The corn borer is bringing a change in condition, since it will add to the cost of producing corn. The successful farmer will adopt practices to meet this new situation. Farm account records have shown that there is a vast variation in the earnings on farms in the same community and under the same soil and climatic conditions. A study of these records will assist materially in deciding what changes will be most profitable.

Crop Rotation Important in Corn Borer Control

Since the most logical method of combating the borer at present is through the destruction or plowing under of the stalks, the order of the crops in the rotation is quite important. Where the corn crop is followed with a crop which requires the land to be plowed there will, of course, be very little extra labor involved. If this crop which follows corn is also a high income crop such as sugar beets, potatoes, tomatoes, or cabbage, the condition is materially improved. Markets, soil conditions, and labor supply, however, limit the acreage of crops of this kind which can be profitably grown.

Where the corn is cut and followed by small grain, low cutting seems to be the most desirable method of control. Where the corn is husked from standing stalks and is followed by small grain the stalks must be removed or plowed under. The control method is therefore determined rather largely by the method of harvesting the corn and the crop which follows in the rotation.

Most Desirable Control Methods Depend Upon Local Conditions

Farmers in the corn borer area have used the following methods of control, depending upon their type of farming:

1. Low cutting where (a) Corn is put into the silo, (b) fodder is shredded, (c) long fodder is fed and the refuse tramped into the manure.
2. Plowing under stalks and stubbles.
3. Destruction of stalks by burning.

Fig. 2.—Clean raking is necessary in order to avoid expensive hand labor. Most farmers find it advisable to rake both ways.

Low Cutting for Control

Seventy-eight per cent of the 1927 corn acreage in Ohio was harvested by cutting. In northeastern Ohio 92 per cent of the corn was cut, and since most of the corn land is normally plowed for the following crop very little extra labor will be required for corn borer clean-up in that area. In northwestern Ohio, however, only 67 per cent of the corn was cut, while 33 per cent was harvested from standing stalks. The amount of corn cut varies greatly between different sections even in northwestern Ohio, ranging from 87 per cent in Seneca to only 22 per cent in Paulding County.

If it becomes necessary to change the methods of harvesting corn, the individual farmer will use those methods which will give control with a minimum of extra labor and machinery. Since such a large percentage of the corn in Ohio is cut, low cutting has become a popular practice. Its use in the future will depend upon its effectiveness as a control measure. Ohio farmers have used the following implements for low cutting:

1. Ordinary corn binder properly adjusted or with low-cutting attachments.
2. Two-row blade cutters.
3. Hand-cutting with special corn knife.

Fig. 3.—The large amount of hand labor which will be required to clean this field would have been avoided by a good job of breaking the stalks.

Where low cutting is used only a small amount of extra labor is necessary, most of which is due to the necessity of handling the longer fodder.

Plowing for Control

In Ohio, 60 per cent of the 1927 corn land was plowed for the following crop, one-fourth being stalk ground, while three-fourths was stubble ground. In northeastern Ohio 89 per cent of all corn land was plowed, while in the northwestern part of the state only 60 per cent was handled in this manner. These variations in methods of seeding crops following corn are the result of differences in soil conditions, type of farming, labor requirements, and the neces-

sity for weed control. Unless it is possible to thoroughly cover all the stalks through proper plow adjustments, many farmers have found it advisable to rake and burn long stalks before plowing. This is especially true where corn is to be followed by a cultivated crop such as sugar beets, or the second crop of corn.

Breaking, Raking, and Burning as a Method of Control

Paulding County, Ohio, with its heavy soil, is an example of an area where much corn is grown but where spring plowing for small grains is not practical. There were 62,000 acres of corn grown in Paulding County in 1927. Of the 46,120 acres husked from standing stalks, 41,540 acres, or 90 per cent, were seeded to the 1928 crop without plowing. This county is typical of a considerable acrea in the Corn Belt, much of which is not yet known to

Fig. 4.—These two fields were seeded to oats without plowing.
(Left) Long stalks were raked with a special stalk rake, and burned. One and one-half hours of man labor per acre were necessary to break, rake, and burn stalks
(Right) Corn was cut with a properly adjusted binder.

be infested with the corn borer. On this acreage raking and burning is the control method used.

Under 1928 conditions many farmers were able to get their fields reasonably clean without resorting to hand picking. The impracticability of hand picking is shown by the fact that 9 hours of difficult labor were required to clean an acre by this method following a poor job of breaking and raking. The success or failure of the raking and burning as a method of removing stalks, depends upon the thoroughness with which the stalks are broken. The importance of breaking is shown clearly in Figures 2 and 3.

The most satisfactory results were secured where the breaking was done with an I-beam or a railroad iron, when the stalks were frozen dry. A poor job of breaking makes clean raking impossible

Fig. 5.—The stalk shaver requires more time than breaking with an iron, but is practical when stalks are not in condition to break well.

labor necessary under this method of destroying the stalks can be done at a time of year when little labor is demanded by other farm operations, it is a satisfactory practice from a farm management standpoint.

For the reasons given herewith raking and burning will be used in this and similar areas so long as it will keep the borer below the point of commercial damage.

and necessitates the use of hand labor to finish the job. It is better to cut them off with a stalk shaver rather than do a poor job of breaking. With a thorough job of breaking, most farmers found they could get satisfactory results by raking both ways with a special stalk rake.

These stalk rakes are similar to the ordinary steel hay rake except that the teeth are heavier and are closer together. Since the

Fig. 6.—When a poor job of breaking is done, many farmers find it necessary to go over the fields with a hoe to insure a clean job of raking, and avoid handpicking.

Results from Successful Farms

For a period of years there have been a large number of farmers in Ohio who have been keeping accurate records of their farm business in cooperation with the Department of Rural Economics of The Ohio State University. These records have pointed out the fact that there have been financially successfully farmers living beside other farmers whose operations have been less profitable. A study of these records has revealed certain definite reasons why some farms are more profitable than others. It is

Fig. 7.—A thorough job of plowing avoids extra labor.

these principles of good farm management which will enable some men to meet the corn borer problem more successfully than others. Some of these less efficient farmers could well change the organization of their farm business even if there were no corn borers present, and this pest may be responsible for speeding up some of these much needed changes.

From the men who have been keeping farm accounts in the infested area of northwestern Ohio a group of 80 of the more successful ones were selected. These men have received incomes considerably above the average, and a study of their methods should be profitable to other farmers in the Corn Belt. All of these farms

were visited during the spring of 1928, and the operators were interviewed in order to study the farming systems which they follow and the effectiveness of various control methods. Seven of these farms are described in detail on the following pages. These farms were selected from this group of 80 because of the successful organization of farms of different sizes and types, and also because the corn borer clean-up can be fitted into their plans with a minimum amount of extra labor.

Practices which have proven successful on these farms are

Fig. 8.—A good job of breaking may be done with a railroad iron when stalks are frozen brittle. Some farmers use a longer iron and hitch a team on each end. A heavy steel I beam also gives satisfactory results.

practical for many farms of the Corn Belt and can be profitably applied if the operators are faced with the corn borer problem.

These seven farms had an average labor income* for 1927 of $1937, while on 144 farms in this area on which complete farm account records were kept during the same year the income was only $974. It is probable that the average earnings on the 144 farms was much higher than for the average of all farms in this area, since these men are using accounts to study and improve their business.

* Labor income is the term used to designate the income which the farmer received for his year's work after all farm expenses and interest at 4 per cent on all his invested capital had been deducted from the farm receipts.

Farms 1 and 2 used low cutting as a method of control, while farms 3 and 4 followed the practice of plowing down the stalks, and farms 5 and 6 relied upon raking and burning. Farm Number 7 used a combination of these methods. The range of farming types in northwestern Ohio is so great that the principles demonstrated by these selected farms will apply to a rather wide range of conditions in the territory farther west in the Corn Belt.

Farm Number 1 (1927)

Total Acres in the Farm.....210

Acres in crops	137	Number of cows	7
Acres in corn	68	Beef cattle fed	60
Bushels of corn per acre	50	Number of sows	12
Method of harvest: Corn is cut		Number of ewes	6
Method of control: Low cutting		Number of hens	200
Implement used: Corn binder		Per cent of receipts from livestock	84

Crop sequence: (1) corn, (2) oats or wheat, (3) red clover or sweet clover spring plowed.

This farm is located in a section where large acreages of corn are cut and fed to cattle in the form of silage, shredded fodder, or long fodder. There are 210 acres in the farm, 137 acres of which are in crops. In 1927 the farm produced 68 acres of corn, and 55 acres of this was harvested by cutting. The corn from 10 acres was put into the silo, while that from 45 acres was fed as shock corn. Practically all of the corn from the 45 acres was fed without husking to 60 beef steers in a small barn lot in which were two straw stacks. The straw was worked down and assisted in covering stalks in the manure.

Fig. 9.—Cleaning up corn stalks when fodder is fed over a large area of pasture land requires much extra labor.

The feeding period

on this farm ends near the first of May, which gives time to get the loose stalks cleaned up before corn borer moths emerge. As can be seen from Fig. 10, the only stalks to be cleaned up are those under the feed racks and near the fences. This shows a very decided contrast in the extra labor necessary when compared with Fig. 9.

Small Grain Crops Follow the Corn.—On this farm either oats or wheat may follow the corn crop. When conditions are right in the fall a part of the land where corn has been cut is seeded to

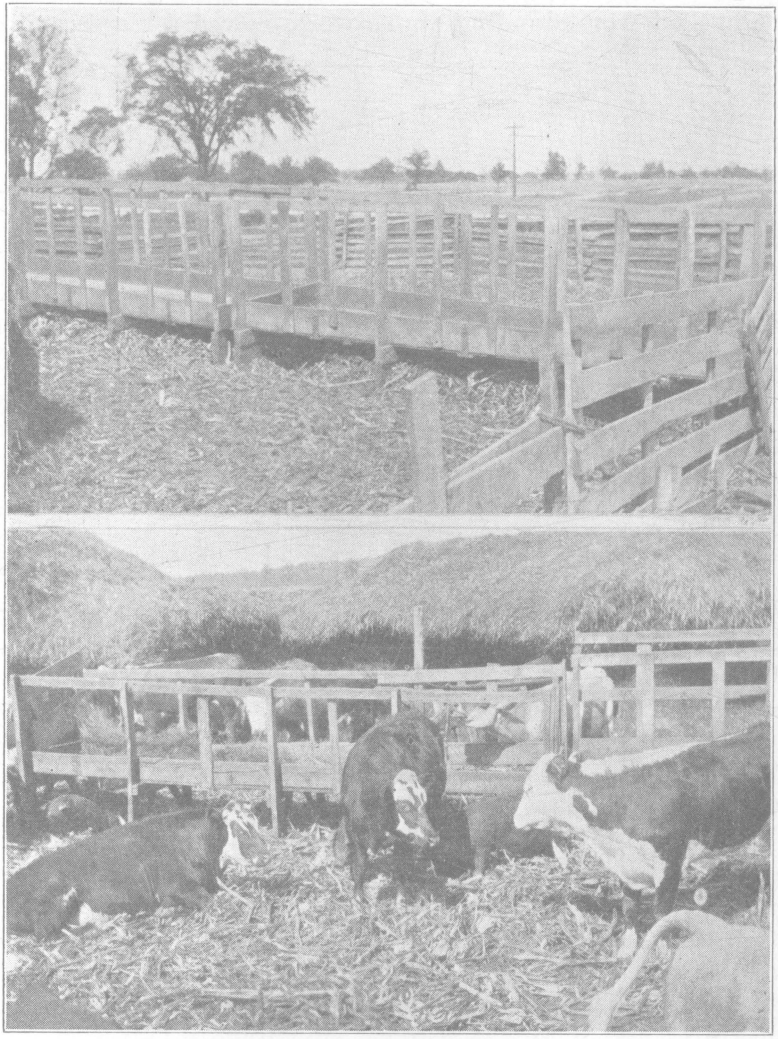

Fig. 10.—*(Upper)* A feed lot in which 45 acres of shock corn had been fed to 60 steers. Dry stalks under the feed racks can be cleaned up in a few hours. *(Lower)* Converting corn into beef and stalks into manure.

wheat. The rest of the corn acreage is seeded to oats in the spring. Red or sweet clover is seeded in all of the small grains, the latter being spring plowed for corn. Where corn is husked from standing stalks or hogged down it is often followed by a second year of corn. These practices permit a large proportion of the crop acreage to be in corn, but through the liberal use of legumes and manure good crop yields have been maintained.

Corn Cut Low With a Binder.—Most of the corn on this farm was cut low with an ordinary corn binder. The 13 acres which were husked from standing stalks were plowed for a second crop

Fig. 11.—Where corn is normally cut, low cutting requires very little extra labor.

of corn. *The only extra labor for corn borer clean-up on the 55 acres which were cut was due to the fact that it took a little longer to cut the acreage and to handle the longer stalks.*

Livestock Important in this System.—Eighty-four per cent of the receipts on this farm were from livestock. In addition to the 60 head of beef steers there were 7 dairy cows, 12 sows, and 200 hens on this farm. This amount of livestock was sufficient to consume all the feed produced on the farm except the wheat. This gives four important sources of income from livestock, and uses both grains and roughage to good advantage. This system also gives a good distribution of labor, since the major demand for livestock labor comes at a season when it is not needed for field work.

Farm Number 2 (1927)

Total Acres in the Farm.....80

Acres in crops	51	Number of cows	6
Acres in corn	17	Beef cattle fed	
Bushels of corn per acre	61	Number of sows	4
Method of harvest: Corn is cut		Number of ewes	
Method of control: Low cutting		Number of hens	100
Implement used: Sled cutter		Per cent of receipts from livestock	36

Crop sequence: (1) corn, (2) wheat, (3) clover.

This farmer, who lives in western Ohio, has followed a definite rotation of corn, wheat, and clover for the past 26 years. The plan is typical of a rather large area in the southern part of the Corn Belt, where wheat is seeded after corn is cut in the fall. Although this farm was outside the area where control regulations were in force in the fall of 1927, the corn was cut with a sled-type cutter which left stubbles only 2 inches high. This is an 80-acre farm and the crop land is divided into three 17-acre fields. In 1927 the corn on this farm produced 61 bushels and the wheat 30 bushels per acre. High crop yields in this case are the result of legumes, manure, good seed, and careful cultivation. The crop sales are from wheat, seed corn, clover seed, and apples.

Livestock System.—The livestock on this farm comprises 6 cows, 4 brood sows and 100 hens. The sales of livestock and livestock products comprised 36 per cent of the income from the farm. The sale of seeds, fruit, and wheat in addition to the livestock products enables the operator to do a good-sized business on a relatively small acreage. This cropping system is one which is applicable to quite a large area and can be applied to larger farms, since the labor distribution with a system of this kind is very good. *The only extra labor on this farm caused by the corn borer would be that necessary to cut the stalks low enough to give control.*

Farm Number 3 (1927)

Total Acres in the Farm.....86

Acres in crops	43	Number of cows	8
Acres in corn	12	Number of beef cattle fed	
Bushels of corn per acre	64	Number of sows	2
Method of harvest: Corn is cut		Number of ewes	
Method of control: Plowing		Number of hens	110
Implement used: 16" bottom		Per cent of receipts from livestock	75

Crop sequence: (1) corn, (2) sugar beets, (3) oats, (4) sweet clover.

Meeting the corn borer control regulations on this farm required no changes from normal farming practices. There are 86 acres in this farm, 43 of which are in crops. The rotation consists of corn, sugar beets, oats and sweet clover, with a small field for alfalfa. On this farm the corn is cut and put in the silo or shredded, but the same rotation will work equally well where corn is husked from standing stalks. Where beets follow long stalks it is usually advisable to rake and burn before plowing. Beets must have frequent cultivations, so it is quite important that all stalk refuse be plowed down so deep that it will not be dragged to the

Fig. 12.—Sugar beets growing where stalks had been raked and burned before the land was plowed. Thirty-four hours of man labor and sixty-eight hours of horse labor were necessary to break, rake, and burn the stalks on this 25-acre field.

surface later in the season. Under this system no corn refuse was left on the surface of the land even before the coming of the corn borer.

Tomatoes, cabbage, potatoes, soy beans, and corn after corn are crops which could be substituted for sugar beets in this rotation. Intensive crops aid in increasing the size of the business on a small farm. During the past three years on this farm the corn has averaged 64 bushels, and the oats 58 bushels per acre. The average yield per acre of sugar beets for this period has been 12.7 tons. *This system offers an easy solution to the problem of*

disposing of cornstalks on farms where these intensive crops can be marketed advantageously.

Dairy Cows and Poultry.—This farmer keeps 8 cows, 2 sows, and 110 hens. Seventy-five per cent of the total income is from livestock and livestock products, the major part of this coming from the sale of whole milk. The sweet clover in the rotation is used for pasture; the hay is supplied by alfalfa. All the crops are fed, except the sugar beets, and the livestock utilize the labor profitably during the winter.

Farm Number 4 (1927)

Total Acres in the Farm.....292

Acres in crops.....133	Number of cows..... 8
Acres in corn..... .. 28	Beef cattle fed.....
Bushels of corn per acre..... 69	Number of sows.. 8
Method of harvest: Husked from standing stalks	Number of ewes.....19
Method of control: Plowing	Number of hens.....90
Implement used: 14" gang plow	Per cent of receipts from livestock 60

Crop sequence: (1) corn, (2) oats or soy beans, (3) wheat, (4) clover.

The system used on farm No. 4 is one which is applicable to rather a large area where it is advisable to plow corn land for oats. A four-year rotation of corn, oats or soy beans, wheat, and clover is used. In 1928, 19 acres of the corn land were put into oats and 9 acres went to soy beans. The corn is husked from standing stalks and the control practice consists of breaking, raking, and burning these stalks and then plowing the land. Twenty-six hours of man labor and forty-two hours of horse labor were required to break, rake twice, and burn the stalks on the 28 acres of corn land. Many farmers find it possible to plow under long stalks for small grain without raking and burning, thus avoiding this extra labor and loss of humus. The plowing was done with a tractor which pulled two 14-inch bottoms equipped with special guards to insure turning under all trash.

Sixty per cent of the income from this farm was from the sale of livestock and livestock products, with the bulk of this coming from the sale of hogs. With the large acreage of legumes and the bulk of the feed produced being fed to livestock, excellent crop yields have been secured over a period of years. *Because of the larger amount of labor required for plowing, this method would be employed only where the normal practice was to plow the corn land for oats.*

Farm Number 5 (1927)

Total Acres in the Farm.....360

Acres in crops.....300	Number of cows.....13
Acres in corn.....100	Beef cattle fed.....
Bushels of corn per acre..... 50	Number of sows.....24
Method of harvest: husked from standing stalks	Number of ewes.....67
	Number of hens.....60
Method of control: raking and burning	

Crop sequence: (1) corn, (2) oats, (3) clover or alfalfa.

This farm is located in Paulding County, Ohio, where corn is husked from standing stalks and where it is impractical to plow corn land in the spring for oats. This is typical of a rather large

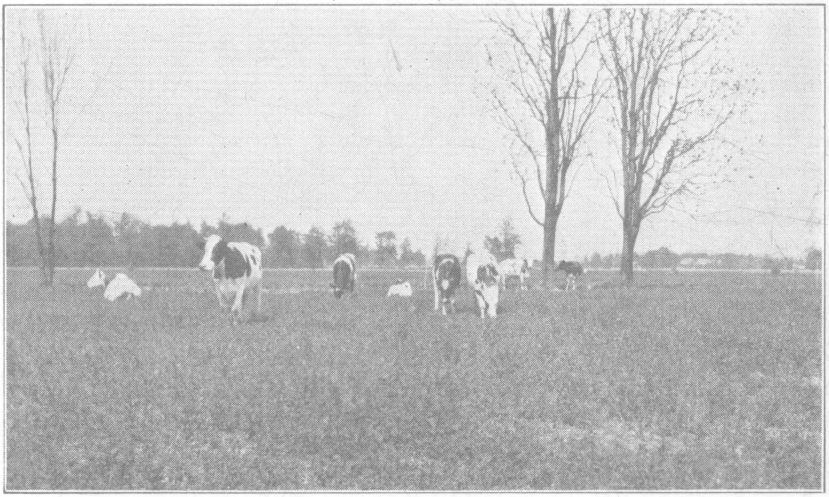

Fig. 13.—Dairy cows use both sweet clover and cornstalks to good advantage, and so fit in well with good farm management in the corn borer area.

area in western Ohio and eastern Indiana where the soil is heavy and where large acreages of corn are grown. The rotation on this farm is corn, oats, and legume. In 1928 on this farm there were 100 acres of alfalfa being used for both hay and pasture. Other farmers in this area often seed sweet clover in the oats and plow it down the following spring for corn.

On this 360-acre farm in 1927 there were 100 acres of corn. Fifteen acres of corn were cut and put into the silo, leaving 85 acres of long stalks to clean up. This acreage was cleaned by breaking, raking twice with a special stalk rake, and burning. The 15 acres were cut low and drilled to oats with no other labor. On

the 85 acres the oats were drilled in without any preparation other than the raking and burning. At the beginning of the year there were 13 cows, 67 ewes, 24 brood sows, and 60 hens on this farm. This is considerably more livestock than is found on the average farm of this size in the area.

Fifty-two per cent of the receipts on this farm were from livestock products, while 48 per cent were from the sale of crops. The livestock sales were largely from hogs, but sheep and dairy cattle brought in over $1000 for the year.

It will be noted that the livestock on this farm did not consume any large percentage of the cornstalks produced. Under corn borer conditions it is quite likely that many farmers in this area will wish to increase the number of cattle in order to utilize more roughage. This will assist in disposing of the cornstalks and at the same time put more organic matter back into the soil. Where the stalks are raked and burned it is quite important that the legume acreage be increased in order to keep up the nitrogen and organic matter content of the soil. Under existing conditions thorough breaking, raking, and burning, as shown in Fig. 4 (left) offer the most practical solution to the clean-up problem for this area.

Farm Number 6 (1927)

Total Acres in the Farm.....141

Acres in crops	130	Number of cows	3
Acres in corn	52	Beef cattle fed	—
Bushels of corn per acre	52	Number of sows	2
Method of harvest: Husked from standing stalks		Number of ewes	—
		Number of hens	165
Method of control: Raking and burning		Per cent of receipts from livestock	34
Implement used: Stalk rake			

Crop sequence: (1) corn, (2) oats, (3) clover, (4) wheat — sweet clover spring plowed.

Farm Number 6 is also located on a heavy type of soil where corn land is not plowed for the following crop. Raking and burning is the method of control. In 1927 there were 52 acres of corn on this farm, which was more than normal because of unseasonable weather at wheat seeding time. The rotation followed is corn, oats, clover, wheat with sweet clover seeded in the wheat and spring-plowed for corn. This four-year rotation reduces the corn acreage to 25 per cent of the crop land; but with legumes grown on half the land each year, crop yields are increased so there is little if any reduction in the total value of all crops produced.

One-half the crop land is plowed each year, but since the wheat land is fall-plowed, a good distribution of labor is secured. Wheat is a profitable crop on this farm, since the average yield for the past three years has been nearly 40 bushels per acre.

Raking and Burning for Control.—The man labor necessary to break the stalks, rake both ways and burn, in the spring of 1928 was less than two hours per acre. The operator stated that fewer stalks were left on the ground this year after these operations than in 1927 when the fields were hand-picked. He also stated that the success of the method this year was because all stalks were broken free from the stubs. The breaking was done with a 12-inch steel bridge beam.

The livestock on this farm at the beginning of 1927 comprised 3 cows, 2 brood sows, and 165 hens. Many chickens are raised for sale. Sale of livestock and livestock products made up 34 per cent of the total receipts. Where corn does not occupy more than 25 per cent of the crop acreage the clean-up problem is not serious. This relatively low acreage of corn is desirable only where there is little if any reduction in the total value of all crops produced.

Farm Number 7 (1927)

Total Acres in the Farm.....170

Acres in crops.....146	Number of cows..... 6
Acres in corn..... 33	Beef cattle fed..... .....
Bushels of corn per acre..... 54	Number of sows..... 2
Method of harvest: Cut and husked	Number of ewes..... .....
Method of control: Low cutting, raking, burning, plowing	Number of hens.....100
	Per cent of receipts from livestock 27
Implements used: Binder, plow	

Crop sequence: (1) corn, (2) oats, (3) wheat, (4) clover.
(1) corn, (2) sugar beets, (3) oats, (4) wheat (sweet clover spring plowed)

This farmer uses two distinct rotations and is able to dispose of the cornstalks with a minimum of extra labor. He employs several of the desirable practices described in the previous pages. In 1927 there were 33 acres of corn on this farm. Twenty-five acres were husked from standing stalks and the land was planted to sugar beets in 1928. The corn on the other 8 acres was cut low and the land was seeded to oats.

The rotation in which the corn is husked from standing stalks consist of corn, sugar beets, oats, and wheat with sweet clover

spring-plowed for corn. Since the sugar beets are a cultivated crop the stalks were raked and burned before the land was plowed. Figure 12 shows clearly that all the stalks were disposed of by this method.

In the other rotation the corn was followed by oats, wheat, and a year of sweet clover, pasture. Where corn is cut low and put in the silo or shredded, the land can be seeded to oats without additional clean-up labor. The sweet clover in this rotation is used for pasture. The hay supply is secured from a separate field of alfalfa. *This combination of methods allows a profitable crop-*

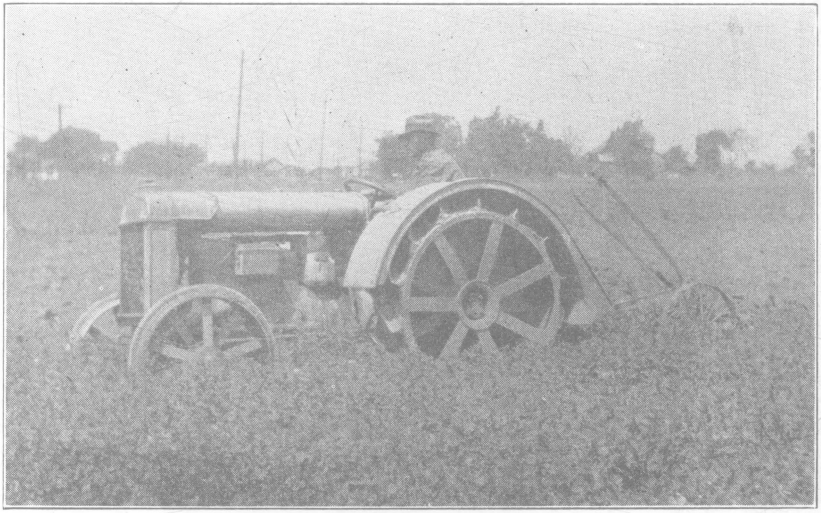

Fig. 14.—Sweet clover, when plowed in the spring, makes a good seedbed for corn. By increasing yields sweet clover reduces the cost of producing corn.

ping system and requires very little extra labor for corn borer clean-up.

In 1927 the corn on this farm averaged 54 bushels, the oats 67 bushels, and the wheat 31 bushels per acre. With both sugar beets and wheat in the rotation crop sales are high and make up 73 per cent of the gross income. The livestock receipts are largely from dairy cattle and poultry. The cropping system includes a large percentage of cultivated crops, yet the man labor is handled efficiently because of an even distribution of labor through the crop season.

About two-thirds of the plowing each year is done in the spring and one-third in the fall. Nearly equal acreages of oats, corn, sugar beets, and wheat, together with a small acreage of alfalfa, distribute the crop labor over most of the year.

Summary of Practices on the Seven Farms

These seven selected farms are typical of a large number in this section of Ohio and in states farther west. The men operating these farms are using desirable farming practices. The average income of these seven farmers during 1927 was nearly $2000 after paying all farm expenses and allowing interest on the capital invested. Their farms are so organized that a good volume of business is done each year. Their crop yields have been far above the average because of the use of legumes, care of manure, and general soil building programs. A large part of their crop land is in high-profit crops each year. Their livestock has returned a profit above feed costs. Their business has been planned to make the best possible use of their labor supply. Their rotations and general farm organizations are now enabling them to meet the corn borer problem with but little extra labor and with the least possible loss of income.

Most farmers who will be confronted with the corn borer situation have much in common with these men. Farmers adopt new practices as a rule because they have proved successful on other farms. The systems used on these seven farms cover a wide range of conditions, and almost any farmer can select practices from this group that can be applied profitably to his own conditions.

Courtesy of U. S. Department of Agriculture

Fig. 15.—Combining corn borer control with good farming practices.